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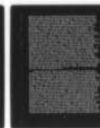
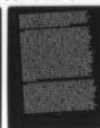
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U.S.S.R. Oil Power: The Significance of Soviet Oil in Fueling the Navy

(Oelmacht UdSSR: Die Bedeutung des sowjetischen Oels für die Betriebsstoffversorgung der Flotte)

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Much has been written in recent years on the menacing growth of the Soviet Navy and on the global expansion of Soviet seapower. The emphasis in the various discussions was naturally placed on describing several especially combat-effective types and classes of warships, and also on accentuating spectacular Soviet successes in the policy of establishing military bases. What was given less prominence, probably because it is not as impressive to the rank and file of readers, was the fact that the Soviets, with the logical development of their fleet of support ships, have produced the logistics component urgently needed for the operations of surface and underwater forces. Thusfar the question has remained unanswered concerning how much supplies the Soviet Navy needs, especially how great their need for oil is and what basic requirements are given for supplying the fleet with fuel. This is all the more astonishing as the course of the Second World War showed most clearly how dependent seapower and warfare are on a sufficient supply of fuel and what a vital role this supply played in strategic planning and in the course of military engagements. One need only remember the oil embargo that the United States inflicted against Japan in the summer of 1941 and which threatened to cripple the Japanese Navy, the Japanese invasion of the Dutch East Indies with the goal of capturing the oil fields there, and Germany's Russian offensive of 1942 which aimed at the occupation of the oil fields in the Caucasus. Lack of fuel ultimately caused the offensive of the German Afrikakorps to slacken and in the final years decisively limited the operational latitude of the Wehrmacht. In the battle of the Atlantic allied tankers were the preferred targets of German submarines and the "floating replenishment" of naval forces generally proved to be a problem of considerable importance. In all reflections concerning Soviet seapower it is probably tacitly assumed that the U.S.S.R., which has a wealth of raw materials, does not have any problem anyway with supplying its navy with oil. After the oil shock of 1973 roused the western industrial nations and demonstrated to them their dependence on the supply of oil, it has, nevertheless, become well worth the effort to also determine the oil needs of the Soviet Navy and simultaneously to study what the economic power behind the support capacity is. Of course there are no official data on the consumption of fuel oil and diesel-fuel oil by the Soviet Navy. However, it can be ascertained by a rough estimate in which it is assumed that a third of all the units is constantly at sea and proceeding at cruising speed. The intervals possibly spent at anchor or limited operational standby and thus involving less consumption, as well as the demand of ships lying in harbor should not be taken into account. On the basis of decreased engine output necessary for cruising speed this estimate yields a daily requirement of 10,000-15,000 tons of combustible or engine fuel. This considerable amount corresponds approximately to the carrying capacity of a rather large replenishment oiler of the BORIS CHILIKIN class. The oiler fleet available to the Soviet naval forces for replenishment at sea or in port has a total carrying capacity of about 270,000 tons. This is, in fact, a considerable floating supply capacity which only non-military tankers approach, when required. No doubt the navy command has also constructed large fuel depots as strategic reserves. The established daily consumption, expressed in terms of a year, amounts to a requirement of from 4 to 5 million tons. At first glance this seems

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like an enormous amount but actually constitutes only one percent of the total Soviet consumption, as the following statements should show. If other large consumers are added in, for example, the merchant and fishing fleets, which comprise almost 20 million GRT, the other services, air and ground transport, and expanding industry - the chemical industry alone has an annual requirement of 12 million tons - then it becomes clear what vast quantities of oil the Soviet Union itself requires. The next section should treat how it meets this need and to what extent it can then assume export commitments.

Petroleum Output in the Soviet Union. Centuries ago Russia was already in the fortunate position of having petroleum deposits in the Baku region. The development of these oil fields was at first severely impaired by the Bolshevik October Revolution; after relations were stabilized, however, it was intensively pushed by the Soviet government. New oilfields were discovered and exploited so that, especially after the Second World War, total output managed to increase sharply. Figure 1 shows this development since 1950 and the scheduling for 1980. In the meantime the Soviet Union has taken first place among the oil-producing countries, ahead of the United States. Annual capacity is in the neighborhood of 500 million tons; by 1980 the proud figure of 600-620 million tons is to be attained. However, in addition to a constantly increasing domestic need the requirements of the CMEA countries must also be met which, with the exception of Rumania, have no oil deposits of their own worth mentioning and procure from 90 to 100 percent of their oil imports from the Soviet Union. The volume of exports which can be set aside annually and supplied to the satellites in quantity amounts to approximately 70 million tons. Western experts have alertly recorded the fact that the growth rate of Soviet petroleum production in 1976 only came to 4 percent. From this one may infer that as domestic requirements are becoming greater and greater petroleum production is now increasing somewhat more slowly and boosts in exports will not be possible. The fact that the Soviet government could not make a firm promise to the Japanese concerning the annual supply of 25 million tons of oil is indicative. This was to occur as a consideration for Japanese cooperation during the pipeline construction in Siberia. Perhaps the Soviet Union in the future will only be able to meet up to 2/3 of the needs of the CMEA countries. These countries will have to be on the look-out, therefore, for other import possibilities. Even the Soviet Union previously has obtained negligible amounts of oil from the countries of the Middle East. For this reason the Arab world is also likely to play an important role in the policy of the Soviet Bloc.

Russian Petroleum Production Areas and Pipeline Hookups. Russian petroleum deposits are concentrated essentially in the following areas (Fig. 2): The Area around the Caspian Sea: This includes, on the west bank, the oil fields in the Republic of Azerbaydzhan, especially the Baku region. On the east bank of the Caspian Sea the Mangyshlak and the Cheleken fields must be mentioned. The Caspian Sea itself is gradually being covered by oil derricks; its underwater oil deposits are being tapped with the help of modern offshore technology. The "Red Barricade" Shipbuilding Yard in Astrakhan specialized in the construction of drilling platforms which can be emplaced in water to a depth of 60 m and can drill down to a depth of 6000 m. Finally, the Hamburg Blohm Voss Shipyard received two contracts for the oil production in the Caspian Sea: It will deliver a floating crane of 2500Mp lifting capacity and will construct a plant for steel construction. A Norwegian shipbuilding yard will construct replenishment ships for the offshore installation. The Volga-Ural Area: It ranges approximately between Volgograd (the former Stalingrad) and Perm and was first exploited in the thirties. Because of its importance it was also called the "Second Baku", in fact however it has already far exceeded the old Baku district in capacity. The Tyumen' Area: This

is looked upon as the most important production area for the future and is also designated as the "Third Baku" and, for all that, eclipses all other areas with its petroleum reserves. Not having come on stream until the mid-sixties, the West Siberian oil region around Tyumen', Shaim, and Surgut has, in the interim (1975), attained an output of 148 million tons. The yield is to be increased to 270 million tons by 1980, that is to say, that 45% of the entire Russian petroleum production is to come from West Siberia. Until that time however huge capital expenditures will still be required, inter alia, in pipeline construction. All projects in the West Siberia oil region have been proclaimed with a great display of advertising and represent a first-class status symbol. The oil fields on the island of Sakhalin are also worth mentioning as the only deposits in the eastern part of the colossal empire. At this point we will not go into the petroleum-processing industry whose refineries likewise established themselves around the discovery sites and the large overcrowded industrial regions. We should rather take a closer look at the pipeline system as the most important means of transport for crude oil and petroleum products. Figure 2 also reflects the development of the most important oil pipelines to the extent that information could be obtained from prevailing, partly contradictory publications and special maps. The simplified presentation reveals that Tuymazy is the junction of the immense pipeline system, whose total length was given as 45,000 km (1966). The best known section is the CMEA Pipeline (Russian: Nefteprovod DRUZHBA = FRIENDSHIP Pipeline) with a length of 4300 km. In Byelorussia it forks into a southern track which leads to Hungary and into a northern track with Rostock as the terminus. This pipeline chiefly supplies the CMEA countries. The most important Soviet ports in the Baltic and the Black and Caspian Seas also meet with the entire Russian pipeline system or will be linked up in the near future. However the through connection to the Far East is still wanting. The technical problems appear considerable and cannot be overcome without Japanese assistance. According to press reports, however, discussions with Japanese companies are presently not making any headway. What is also interesting is the fact that on a section of the Siberian pipeline British pumping stations having Rolls-Royce gas-turbine propulsion are to be used. The most important oil ports are Ventspils in the Baltic, Novorossiysk on the Black Sea with the adjacent Shess-Charis under construction, and in the Pacific Moskalvo on the island of Sakhalin. Nakhodka, which was enlarged into the most important port in the Far East, for example, as a transshipment site for container service, will presumably also become an oil port after the completion of the trans-Siberian pipeline. There is no pipeline to the Arctic Ocean and none of the ports there can be looked upon as a port of transshipment for crude oil or petroleum products.

Soviet Tanker Shipping. Next to the pipeline system Soviet tanker shipping must be cited as the most important means of oil transport. According to official data, on 1 January 1977 it comprised 443 ships totalling 3,976 million GRT. From this figure a very small average size for the tankers could be inferred, which in this respect is misleading as the Soviet Union has a large number of small tankers for employment along the coast. In fact, most of the seagoing ships have carrying capacity between 20,000 and 50,000 tons. The Soviet Union does not have any supertankers at all, as such. Thus the state shipping companies also do not have the problems which have accrued to western shipping concerns, after the great tanker boom ended. On the contrary, it was not until quite late that Russian shipbuilders tackled the construction of a series of ships which, at 150,000 DWT are, to be sure, not supertankers according to western or Japanese standards, but which are designated as such in the Soviet Union. The first ship, the KRYM, was put into service in 1974, the KUBAN followed in 1976, and this year the third tanker of the series, the KUZBASS, is to be delivered. Plans for the construction of a series of 300,000-ton tankers which were announced earlier in the technical press are no longer

mentioned in more recent publications and probably have been quietly dropped. There are various reasons why the Soviets have not participated in the race for the construction of ever larger supertankers. For one thing their tanker fleet seems to be conceived more for their own needs and less for export and international competition in tanker shipping. The bulk of export oil (about 50 million tons per year) flows through the DRUZHEBA pipeline to the CMEA countries. The following example may illustrate what the situation is like with respect to exports to the western countries, by ship therefore: In Wilhelmshaven, the most important oil import harbor in West Germany, about 25 million tons of oil are unloaded annually. The Soviet share of it amounts to a scant 10 percent. The Soviets obviously do not discern any great prospects in international oil transport. They have rather initiated a competition, ruinous for the West, in general cargo shipping and are seriously harming other seafaring countries with extremely low cargo rates. This is substantiated by the fact that the Soviet fleet of general cargo ships increased by about 65 percent in the past ten years. The tanker fleet on the other hand registered a tonnage increase of "only" 35 percent. For another thing Soviet tanker operations must be viewed from the aspect of their military applicability. In addition to the already considerable number of fleet oilers, non-military tankers can also be enlisted to supply warships with fuel oil. Several tankers are intended, from the beginning, to be replenishment ships for fishing fleets and can be just as well employed as fuel replenishment ships for warships. From this point of view it is ultimately more advantageous to have a large number of medium-size militarily employable ships than some few supertankers which, admittedly, can be operated economically in peacetime, but are nevertheless useless for navy purposes. Finally, one other, probably the crucial reason: Supertankers are neither suitable for service in the Baltic nor can they transit the Dardanelles and the Bosphorus when they are loaded. Therefore, they cannot put in at the most important Russian oil ports. Ships of 150,000 DWT thereby represent the maximum employable size.

Summary and Outlook. There is probably no reason for the Soviet naval command to view the future with alarm with respect to the fuel replenishment of the Navy. The logistics requirements, all told, are far more favorable than for the naval forces of NATO. For the Soviet Union as an oil power however, all in all, future development in the energy sector is by no means problem-free. In any event, it is doing everything possible to guarantee its energy supply. That includes primarily the development of enormous natural gas reserves, especially in Siberia. In Siberia also and in Tadzhikistan as well additional water power can be utilized. The construction of nuclear powerplants is still in the initial stage. Nuclear power for ship's propulsion has thusfar been employed only on submarines and icebreakers; there is still no information concerning plans of nuclear powerplants for surface warships. Probably no one is able to say how long the petroleum reserves of the U.S.S.R. will last. In this connection the demand is increasing steadily while no noticeable relief has yet come about in the form of other energy sources. Alongside the expanding economy there is the population of civilian consumers which has an enormous backlog in the supplying of consumer goods and which lately is believed to be enjoying increased personal transport. The report that the Soviet Union will possibly have to curtail its oil exports gives pause for thought. That means that the Soviet Bloc must take a special interest in the friendship of the Arab members of OPEC. A failing in the development of the Soviet petroleum industry is the fact that it will not function without western or Japanese know-how. The past year, in Bremen alone steel pipe having a diameter of 1.42 m and a total weight of almost 150,000 tons was shipped to the U.S.S.R. This example very clearly demonstrates

how strongly the industrial and oil might of the Soviet Union still depends on the West. (Figure 1 accompanying original article is a graph of Soviet oil production between the years 1950-1980. Figure 2 is a map depicting petroleum deposits and pipelines in the Soviet Union.) (Complete Translation)

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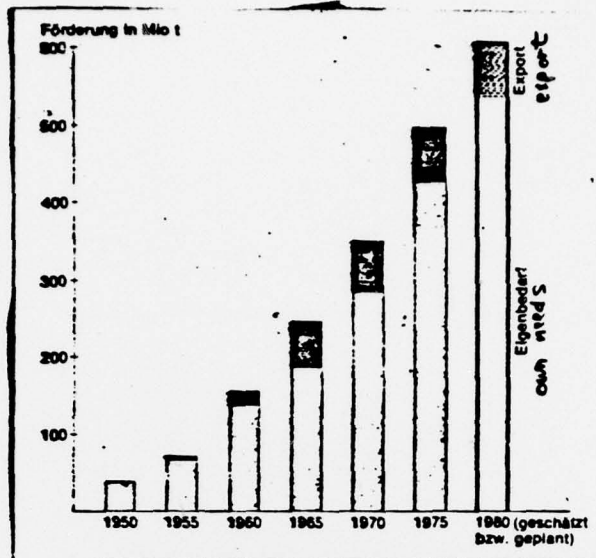


Fig. 1. U.S.S.R. Oil Production 1950-1980

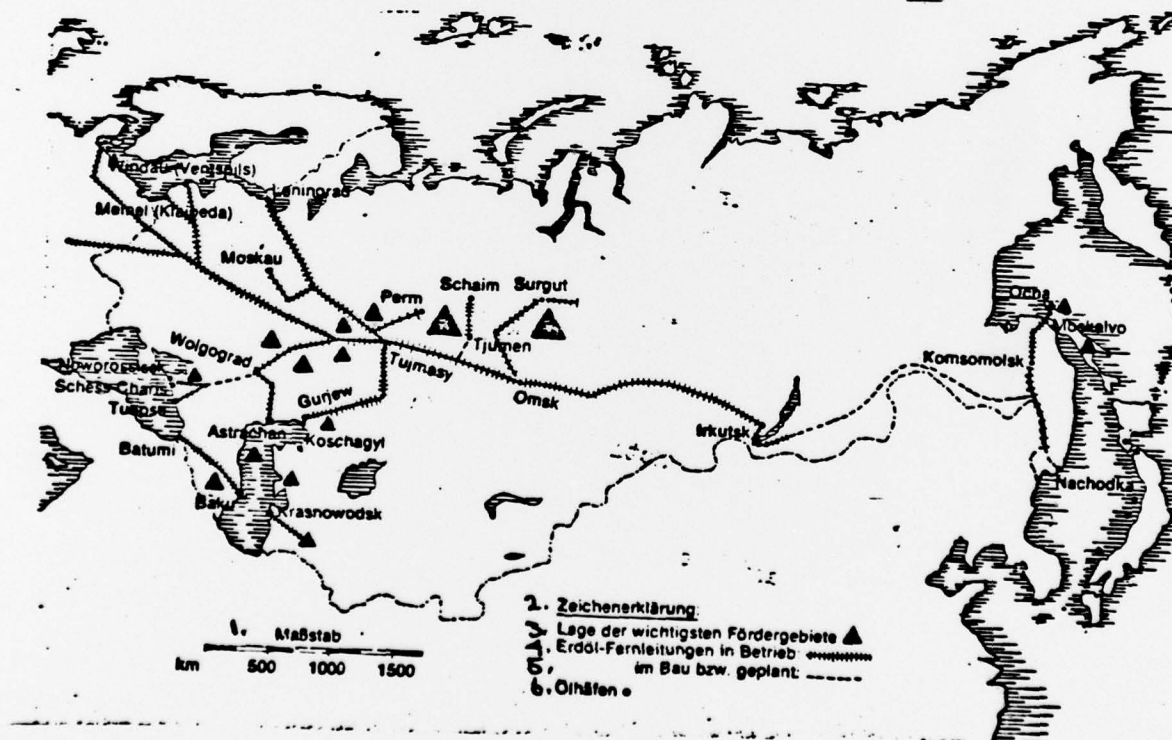


Fig. 2. U.S.S.R. Oil Fields and Pipelines. 1. Scale, 2. Legend, 3. Site of most important production areas ▲, 4. Operating pipelines —————, 5. Planned pipelines - - - - -, 6. Oil ports.